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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201				
			EXAMINER	
			GRIFFIN, WALTER DEAN	
			ART UNIT	PAPER NUMBER
			1764	

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,949

Applicant(s)

DIDILLON ET AL.

Examiner

Walter D. Griffin

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-21 and 23-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-21 and 23-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 36 is indefinite because there is no antecedent basis for the expression "step (c2)" in claim 34.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 11, 12, 16-19, 21, 23-25, 28-40, 45, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carruthers et al. (US 3,691,066) in view of EP 0725126 A1.

The Carruthers reference discloses a process for selectively hydrogenating a diolefin-containing gasoline feed. The process comprises contacting the gasoline and hydrogen with a catalyst to produce a treated gasoline having a reduced amount of diolefins. At the same time, the mercaptans present in the feed react with the olefins present in the feed to produce higher molecular weight sulfur compounds. See col. 2, lines 25-53.

The Carruthers reference does not disclose the separation of the hydrogenated gasoline into at least three fractions and then treating a fraction or blended fractions to remove sulfur and nitrogen. The Carruthers reference also does not disclose the presence of nitrogen or acetylenic compounds in the feed, does not disclose the hydrogen treating rate, and does not disclose catalytic reforming of an intermediate fraction.

The EP 0725126 A1 reference discloses the separation of a gasoline into multiple fractions and then separately treating the fractions based on the sulfur compounds present in the fractions to remove the sulfur compounds. The fractions are then blended. The reference also discloses gasoline fractions are typically reformed to increase the octane number of the gasoline. See the entire document.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Carruthers by separating the hydrogenated gasoline into various fractions and then treating the fractions as suggested by the EP reference because the sulfur content can be reduced while maintaining octane number.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Carruthers by reforming any fraction as suggested by the EP reference because octane numbers will be increased.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Carruthers by utilizing a hydrogen feed rate in the claimed range because Carruthers discloses hydrogen consumption values that are within the claimed hydrogen feed rate. Therefore, one having ordinary skill in the art would expect the process to be effective if hydrogen feed rates are equivalent to the disclosed hydrogen consumption values. By making them equivalent, hydrogen feed rates would include values within the claimed range.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Carruthers by utilizing a feed that contains acetylenic and nitrogen compounds because one would expect a feed that contains these compounds in addition to the disclosed compounds would be effectively treated in the process since this type of feed is similar chemically and physically to the disclosed feed.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Carruthers by blending fractions prior to the desulfurization step because a greater amount of desulfurized product will be obtained.

Claims 13-15, 20, 26, 27, 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carruthers et al. (US 3,691,066) in view of EP 0725126 A1 as applied to claim 11 above, and further in view of Cecil et al. (US 3,732,155).

The previously discussed references do not disclose the multiple treatments of fractions with a catalyst to decompose sulfur either in a single or separate reactors and do not disclose the percent hydrogenation of the olefins as in claim 14.

The Cecil reference discloses a process for desulfurizing a hydrocarbon stream comprising contacting the feed with a catalyst in two successive stages. See entire document.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teaching of the previously discussed references by including a multiple stage desulfurization process as disclosed by Cecil because better hydrogen utilization and efficiency will be obtained. One would choose separate or a single reactor depending on the availability of equipment.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by limiting the hydrogenation of olefins to levels as in claim 14 because olefins are a desired component of the final product.

Response to Arguments

The arguments that the Carruthers reference does not disclose or suggest any treatment of the effluent from the selective hydrogenation step and that the EP 725126 reference does not disclose or suggest selective hydrogenation of a gasoline feedstock are not persuasive because

the rejection is based on a combination of references and one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The argument that the hydrogen treating rate of Carruthers is outside the claimed range is addressed above in the rejection.

The argument that the EP 725126 reference does not disclose or suggest separating a feed into a light fraction and a heavy fraction with the correspondingly claimed characteristics is not persuasive because the EP reference discloses the separation of a gasoline into multiple fractions. As shown in Table 1, the light fractions are essentially sulfur free and also contain olefins. Therefore, the examiner maintains that the EP reference suggests the claimed separation.

The argument that neither reference discloses a feedstock containing nitrogen and acetylenic compounds is not persuasive for reasons stated above in the rejection.

The argument that there is no suggestion that the desulfurization steps of the Cecil reference would be suitable for treating fractions obtained by the EP reference is not persuasive because Cecil discloses in column 4, lines 58 and 59, that virtually any sulfur-containing feedstock can be processed. Therefore, the examiner maintains that one having ordinary skill in the art would expect the fractions to the EP reference to be effectively treated by the steps disclosed by Cecil.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is (571) 272-1447. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

A handwritten signature in dark ink, appearing to read "Walter D. Griffin".

Walter D. Griffin
Primary Examiner
Art Unit 1764

WG

December 16, 2003